



SCIE 1P51
Library Seminar
Winter 2024 term

Ian Gordon



Ian Gordon, Teaching & Learning Librarian



Brock University Library

Library Seminar Agenda

- SCIE Library Research Guide
- Databases – lots of them!
- Citation management
- Where, how and when to get help

Assessment Components & Due Dates

Term Paper

1. Article Choice – 5%

Choose an original research/study article from a recent peer-reviewed science journal (not earlier than January 2023) from the topics covered in Science 1p51. The article you choose for analysis **may not** be a news summary, a commentary, a letter to the editor, **nor** a review. (No social science/psychology papers). Additionally, you may not use any of the readings used in this course. A copy of your chosen article and a full reference/citation for it (APA or MLA format) is due on Brightspace Monday February 5th by 11pm. This portion of the term paper is worth **5%** of the course grade. **Failure to submit the article will result in a grade of zero for the assignment.** This is to ensure success in the term paper by the correct choice of a suitable article. A correct choice will be indicated by your grade on Brightspace, otherwise the seminar leader will email you if it was incorrect and you will have to submit a correct article.

2. Paper – 15%

Write an evaluation of the approved article, **in your own words**, no direct quotes, which must, at least, consider the following questions (~900 words).

Who the researchers are and where do they work?

What is/are the research question(s) the researchers are trying to answer?

Write a summary of the article.

Do you believe the article? Support your opinion.

The paper is due **Monday March 4th** by 11:00pm on Brightspace. A penalty, of **10%** per day of the assignment grade, will be imposed until **Friday March 8th**. No papers will be accepted after this date. Submit the article to your paper - otherwise 3% of the course grade will be deducted. Full details and a mark breakdown for this assignment will be available on Brightspace.



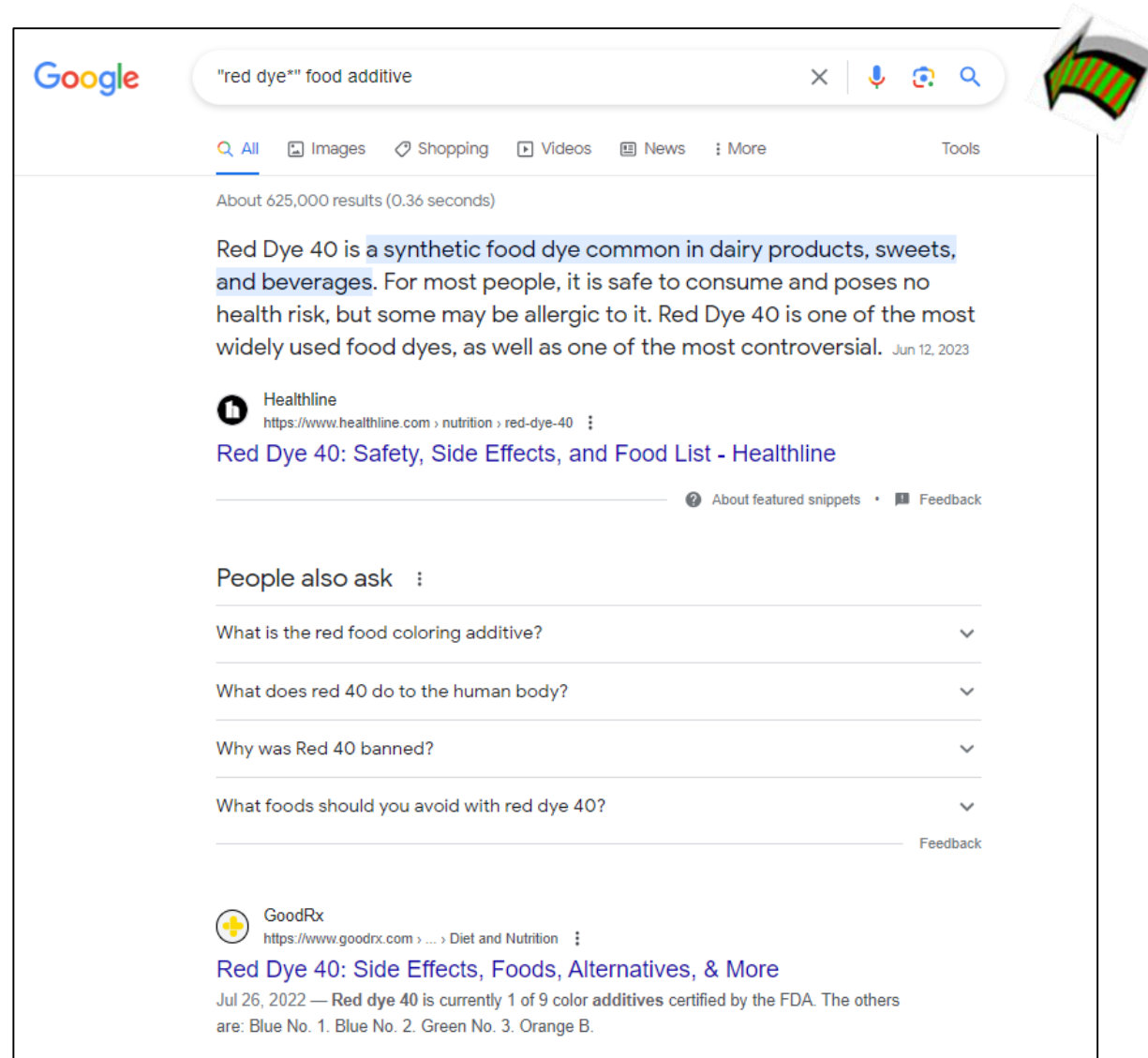
Lecture Schedule

Week	Topic	Lecture Topic Reading
1 & 2	Science & Nature of Science	Vaccine Confidence and Uptake of the Omicron Bivalent Booster in Tennessee: Implications for Vulnerable Populations.
3 & 4	Tobacco Industry & Misuse of Science	Effects of chronic vapor inhalation on mouse body weight, lung morphology, and inflammatory cytokines using a low vapor exposure design.
5 & 6	Genetics & Gene Therapies	Defining curative endpoints for sickle cell disease in the era of gene therapy and gene editing.
7 & 8	Tissue Engineering & Cloning	Organs-on-chips technologies.
9 & 10	Pharmaceutical Industry	The safety assessment of cosmetic perfumes.
11 & 12	Food Additives	Food additive emulsifiers and risk of cardiovascular disease.

The lecture schedule may be subject to change. All topic readings are on Brightspace.

What are the consequences to science and society
for the continued use of Red Dye as an
additive in our food supply?

https://www.google.ca/



Google "red dye** food additive" X | Voice Search | Images | Shopping | Videos | News | More | Tools

About 625,000 results (0.36 seconds)

Red Dye 40 is a synthetic food dye common in dairy products, sweets, and beverages. For most people, it is safe to consume and poses no health risk, but some may be allergic to it. Red Dye 40 is one of the most widely used food dyes, as well as one of the most controversial. Jun 12, 2023

Healthline
https://www.healthline.com > nutrition > red-dye-40
[Red Dye 40: Safety, Side Effects, and Food List - Healthline](https://www.healthline.com/nutrition/red-dye-40)

About featured snippets • Feedback

People also ask :

- What is the red food coloring additive? ✓
- What does red 40 do to the human body? ✓
- Why was Red 40 banned? ✓
- What foods should you avoid with red dye 40? ✓


Feedback

GoodRx
https://www.goodrx.com > ... > Diet and Nutrition
[Red Dye 40: Side Effects, Foods, Alternatives, & More](https://www.goodrx.com/diet-nutrition/red-dye-40)

Jul 26, 2022 — Red dye 40 is currently 1 of 9 color additives certified by the FDA. The others are: Blue No. 1. Blue No. 2. Green No. 3. Orange B.

https://www.google.ca/advanced_search





Advanced Search

Find pages with...

all these words:

red dye

this exact word or phrase:

food additive*

any of these words:

none of these words:

numbers ranging from:

to

Then narrow your results by...

language:

English

region:

any region

last update:

anytime

site or domain:

terms appearing:

in the title of the page

file type:

Adobe Acrobat PDF (.pdf)

usage rights:

not filtered by license

Advanced Search





Saint Peter's University

<https://repository.saintpeters.edu> > downloads PDF

A study of the effects of Allura Red AC (Red 40) and ...

On the other side of the argument, the Internal Association of Color Manufacturers (a trade association for food dye ... Food additives and hyperactive behaviour ...



ScienceDirect

<https://www.sciencedirect.com> > article > pii PDF

Adverse reactions to food additives in children

by A Lemoine · 2020 · Cited by 18 — Health professionals and parents should be reassured about the low risk of food dye intolerance or allergies. Keywords: Carmine red; Cochineal red...



allintext: red dye food OR additives filetype:pdf



> cgi > vie... PDF



Environmental Working Group

<https://www.ewg.org> > sites > default > files > E... PDF

EWG'S DIRTY DOZEN FOOD CHEMICALS

But more than 10,000 chemicals are allowed in food sold in the U.S. Some are direct additives, such as ... Synthetic food dye can be found in many types of food ...

2 pages



Centers for Disease Control and Prevention (.gov)

<https://stacks.cdc.gov> > cdc > cdc_77737_DS1 PDF

Food Additives and Child Health

by L Trasande · 2018 · Cited by 155 — ... Red 3, Red 40, Citrus Red 2, and Orange B ... Food additives permitted for direct addition to food for human consumption - food preservatives -

17 pages

The Chemistry of Food Colorings

ChemMatters | October 1, 2015



Credit: Shutterstock

by Brian Rohrig

Downloads: [Download Article \(PDF\)](#) | [Spanish Translation of Article \(PDF\)](#) | [Teacher's Guide \(.docx\)](#)

Would you drink black water? Clear Pepsi? How about using pink butter or green ketchup? Believe it or not, these products actually existed, and not that long ago either. But there is a reason these food fads did not last. Consumers prefer that the color of food matches its flavor.

The link between color and taste is logical. Since oranges are orange, we expect orange-colored drinks to be orange-flavored. Red drinks should taste like cherries, and purple drinks should taste like grapes. If a food is multicolored, it could be moldy and should not be eaten, unless you are eating blue cheese—which gets its distinct flavor from mold!

WE'RE ANYTHING
BUT TYPICALOur info is backed by
science, research, and
85+ years of expertise.
Don't settle for less.

Access Ratings

Why Is Red Dye No. 3 Banned in Cosmetics but Still Allowed in Food?

Food safety advocates recently petitioned the FDA for a ban decades after studies found high doses of the artificial color could cause cancer in rats. Here's what you need to know.

By Lauren Kirchner

Published November 14, 2022 | Updated October 31, 2023



Food products can still contain Red Dye No. 3.

Photo Illustration: Lacey Browne/Consumer Reports, Getty Images, Shutterstock

More than 30 years ago the Food and Drug Administration told the cosmetics industry that it could no longer use an artificial color called FD&C Red No. 3, also known as Red Dye No. 3 and Red Dye 3. That's because high doses of it had been found to cause cancer in animals.

What's in Your Food?

Get our FREE weekly food newsletter.

By clicking "Sign Up" I agree to the [Privacy Policy](#) and [User Agreement](#).

Sign Up

EXPLORE

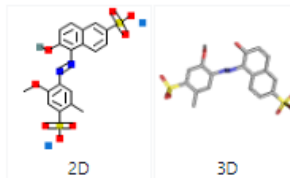
Health



Allura Red AC

PubChem CID 33258

Structure



Chemical Safety

Laboratory Chemical Safety Summary (LCSS) Datasheet

Molecular Formula

$C_{18}H_{14}N_2Na_2O_8S_2$

Synonyms

Allura Red AC
25956-17-6
Allura Red
Allura red AC dye
Food Red No. 40

[View More...](#)

496.4 g/mol

Computed by PubChem 2.2 (PubChem release 2021.10.14)

[Fluorescent Ink and Chemical Sensing Towards Tartrazine Based on Nitrogen-Doped Carbon Dots Derived from Durian Seed Waste](#)

Publication Name: Waste and Biomass Valorization

Publication Date: 2023-04-06

DOI: [10.1007/s12649-023-02109-4](#)

[Meat food fraud risk in Chinese markets 2012–2021](#)

Publication Name: npj Science of Food

Publication Date: 2023-04-03

PMCID: [PMC10070328](#) PMID: [37012259](#) DOI: [10.1038/s41538-023-00189-z](#)

[Anoxybacillus: an overview of a versatile genus with recent biotechnological applications](#)

Publication Name: World Journal of Microbiology and Biotechnology

Publication Date: 2023-03-30

PMID: [36995480](#) DOI: [10.1007/s11274-023-03583-7](#)

[Modeling of artificial neural networks for the adsorption of synthetic dyes in an aqueous solution using double layer hydroxides](#)

Publication Name: MRS Advances

Publication Date: 2023-03-17

DOI: [10.1557/s43580-023-00535-z](#)

[Status of food colorants in India: conflicts and prospects](#)

Publication Name: Journal für Verbraucherschutz und Lebensmittelsicherheit = Journal of consumer protection and food safety

Publication Date: 2023-03-13

PMCID: [PMC10009361](#) PMID: [37265594](#) DOI: [10.1007/s00003-023-01427-y](#)

CONTENTS

Title and Summary

1 Structures

2 Names and Identifiers

3 Chemical and Physical Properties

4 Spectral Information

5 Related Records

6 Chemical Vendors

7 Food Additives and Ingredients

8 Pharmacology and Biochemistry

9 Use and Manufacturing

10 Safety and Hazards

11 Toxicity

12 Associated Disorders and Diseases

13 Literature

14 Patents

15 Interactions and Pathways

16 Biological Test Results

17 Classification

18 Information Sources

https://en.wikipedia.org/wiki/



Allura Red AC

🌐 21 languages ▾

Article [Talk](#)

[Read](#) [Edit](#) [View history](#) [Tools](#) ▾

From Wikipedia, the free encyclopedia

(Redirected from [Red dye 40](#))

"E129" redirects here. For other uses, see [E129 \(disambiguation\)](#).

Allura Red AC is a [red azo dye](#) that goes by several names, including [FD&C Red 40](#).^[1] It is used as a food dye and has the [E number](#) [E129](#).

It is usually supplied as its red [sodium salt](#), but can also be used as the [calcium](#) and [potassium](#) salts. These salts are soluble in [water](#). In [solution](#), its maximum [absorbance](#) lies at about 504 nm.^[2]^[921]

Allura Red, FD&C Red No. 40 is manufactured by coupling diazotized 5-amino-4-methoxy-2-toluenesulfonic acid with 6-hydroxy-2-naphthalene sulfonic acid in an [azo coupling](#) reaction.^[3]

Use as a consumable coloring agent [\[edit \]](#)

Allura Red AC is a popular dye used worldwide. Annual production in 1980 was greater than 2.3 million kilograms.^[4] It was originally introduced as a replacement for [amaranth](#) in the United States.^[5]

The [European Union](#) approves Allura Red AC as a food colorant, but EU countries' local laws banning food colorants are preserved.^[6] In the United States, Allura Red AC is approved by the FDA for use in [cosmetics](#), drugs, and food. When prepared as a [lake pigment](#) it is disclosed as Red 40 Lake or Red 40 Aluminum Lake. It is used in some tattoo inks and is used in many products, such as [cotton candy](#), [soft drinks](#), [cherry](#)-flavored products, children's medications, and [dairy](#) products. It is occasionally used to dye medicinal pills, such as the [antihistamine fexofenadine](#), for purely aesthetic reasons.^[7] It is by far the most commonly used red dye in the United States,^[8] completely replacing [amaranth](#) ([Red 2](#)) and also replacing [erythrosine](#) ([Red 3](#)) in most applications due to the negative health effects of those two dyes.^[9]

Studies on safety [\[edit \]](#)

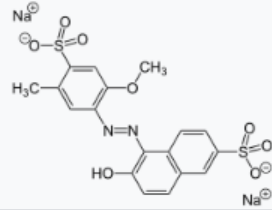


Allura Red AC in strawberry [soft drink](#)

Allura Red has been heavily studied by food safety groups in North America and Europe, and remains in wide use.

The UK's Food Standards Agency commissioned a study of six food dyes ([tartrazine](#), Allura red, [Ponceau 4R](#), [Quinoline Yellow](#), [sunset yellow](#), [carmoisine](#) (dubbed the "Southampton 6"), and [sodium benzoate](#) (a preservative) on children in the general population, who consumed them in beverages.^{[10][11]} The study found "a possible link between the consumption of these artificial colours and a sodium benzoate preservative and increased hyperactivity" in the children;^{[10][11]} the advisory committee to the FSA that evaluated the study also determined that because of study limitations, the results could not be extrapolated to the general population, and further testing was recommended.^[10]

Allura Red AC



Names

Preferred IUPAC name

Disodium 6-hydroxy-5-[(2-methoxy-5-methyl-4-sulfonatophenyl)diazenyl]naphthalene-2-sulfonate

Other names

Disodium 6-hydroxy-5-[(2-methoxy-5-methyl-4-sulfophenyl)azo]-2-naphthalenesulfonate
Allura Red
Food Red 17
C.I. 16035
FD&C Red 40
E140
2-Naphthalenesulfonic acid, 6-hydroxy-5-[(2-methoxy-5-methyl-4-sulfophenyl)azo]-, disodium salt

Identifiers

CAS Number	25956-17-6 ↗ ↗
3D model (JSmol)	Interactive image ↗
ChEMBL	ChEMBL174821 ↗ ↗
ChemSpider	11588224 ↗ ↗
ECHA InfoCard	100.043.047 ↗ ↗
E number	E129 (colours)
PubChem CID	6093299 ↗
UNII	WZB9127XOA ↗ ↗
CompTox Dashboard (EPA)	DTXSID4024436 ↗ ↗
InChI	[show]
SMILES	[show]


Properties

Library Seminar Agenda

- SCIE Library Research Guide
- Databases – lots of them!
- Citation management
- Where, how and when to get help

<https://brocku.ca/library/>

[Main](#)
[Search](#)
[Use the Library](#)
[Teaching Support](#)
[Publishing Support](#)
[Research Support](#)
[Locations](#)
[About](#)
[Contact](#)




[SEARCH](#)

[Advanced Search](#)
[Omni Search Tips](#)


Today's Hours

James A. Gibson Library	8am – 11pm
Archives & Special Collections	9:30am – 4:30pm
Makerspace	10am – 4pm
Map, Data & GIS Library	9am – 4pm
Ask Us Chat	10am – 10pm


[ALL HOURS](#)




MY LIBRARY ACCOUNT




PRINT, COPY & SCAN




BOOKABLE STUDY SPACE



CITATION GUIDES

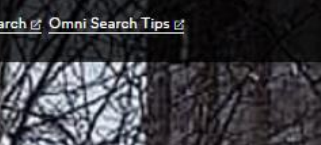


RESEARCH GUIDES




WELLNESS AT THE LIBRARY

EVENTS & WORKSHOPS



JAN 11

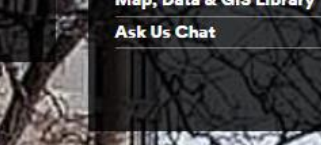
Grad Student Writing Café



JAN 16

3D MODELING IN BLENDER PART: 1

KERSPACE



JAN 17


3D MODELING IN BLENDER PART: 2

KERSPACE


Science

[WELCOME](#)[ARTICLES](#)[BOOKS](#)[GREY LITERATURE](#)[BORROW FROM OTHER LIBRARIES](#)[ADDITIONAL COURSE GUIDES](#)

Need Help?



Contact us at libhelp@brocku.ca or find more library help on our [Research Support](#) page.




Science

What is this guide for?

This guide has been designed as a general program guide and is curated by [Brock librarians](#). It features links to most often used resources such as databases for books, peer-reviewed journal articles, theses, dissertations, open educational resources (OEDs), patents, standards, and more. Use the tabs on the left to navigate through the web page.


SCIE 1P51 Library Seminar Winter 2024 presentation ppt [slides](#) (PDF) and YouTube [video](#).



Attribution

Creative Commons License

This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](#).





Science

WELCOME

ARTICLES

BOOKS

GREY LITERATURE

BORROW FROM OTHER LIBRARIES

ADDITIONAL COURSE GUIDES

Need Help?



Chat with a librarian

Contact us at libhelp@brocku.ca or
find more library help on our
[Research Support](#) page.

Grey Literature

Grey literature [databases](#) identify resources that are key to research and scholarship. Many are open resources that go through a quality control process before they are published.

[Definitions](#) are scholarly dictionaries, encyclopedias and handbooks that help define terms and provide additional context. A select list includes:


[Dictionary Plus: Science & Technology](#) (2016)


[Gale Encyclopedia of Science](#) (2021)

[Encyclopedia of Environmental Issues](#) (2019)

[Wikipedia](#)

[Open Education Resources](#) (OERs) are digital ebooks and learning objects that can be used as open textbooks on a wide variety of general and disciplinary subjects.

- [Oxford Reference](#) 
 - Interdisciplinary
 - Includes Oxford Quick Reference of core subject, quotation, and language dictionaries and Oxford Reference Library of companions and multi-volume encyclopedias for longer, in-depth, essays and specialist definitions.
 - Limited to 5 simultaneous users.
 - [Permitted Uses](#)

[more info...](#)
- [Oxford Handbooks Online](#) 
 - In-depth, peer-reviewed essays and introductions by leading scholars in Archaeology, Business & Management, Classical Studies, Criminology, Economics & Finance, History, Law, Linguistics, Literature, Music, Neuroscience, Philosophy, Physical Sciences, Political Science, Psychology, Religion, and Sociology
 - [Permitted Uses](#)



Science

WELCOME

ARTICLES

BOOKS

GREY LITERATURE

BORROW FROM OTHER LIBRARIES

ADDITIONAL COURSE GUIDES

Need Help?



Ask
Chat with a librarian

Contact us at libhelp@brocku.ca or
find more library help on our
[Research Support](#) page.




Books

Scholarly books or ebooks range from introductory textbooks, handbooks, and subject-specific resources. A select list of [databases](#) that identify books/ebooks are listed below.

Many students find [Open Education Resources](#) (OERs) that are open and free textbooks for a variety of courses and subject areas helpful.

The most straightforward way to find books is by using [Omni](#) our local search interface!

Book & E-Book databases

- [Omni](#) 
 - Brock's largest Interdisciplinary search tool
 - Millions of journal articles, books & ebooks, newspapers, videos, magazines and more!
- [Google Books](#)
Select "Limited preview and full view" and "Books" for best results.
- [Directory of Open Access Books \(DOAB\)](#) 
 - Interdisciplinary
 - Find full text, peer-reviewed books and edited volumes.
 - [Terms of Use from Publisher Site](#)
- [WorldCat](#) 
 - World's largest network of library-based collections.
 - Search library catalogues from around the world for books, audiovisual materials, videos, digital files, theses and journal articles.
 - [Terms of Use from Publisher Site](#)



Science

WELCOME

ARTICLES

BOOKS

GREY LITERATURE

BORROW FROM OTHER LIBRARIES

ADDITIONAL COURSE GUIDES

Need Help?



Ask
Chat with a librarian

Contact us at libhelp@brocku.ca or
find more library help on our
[Research Support](#) page.

Articles



Journal articles are scholarly works that go through a quality control process called **peer-review** before they are published.

Note that **Web of Science Core Collection** includes scholarly peer review articles from important scholarly journals with the ability to limit searches by date, relevance, language, format and importance. A great source to find current scholarly peer-review articles.

Several databases provide access to regional, national and international **news** articles.

Omni using the Advanced Search search engine searches for articles by selecting Resource Type: Articles.

A select list of open and Brock Library subscribed **databases** that include scholarly articles are listed below.

- **Google Scholar** [↗](#)

- Find Peer-reviewed papers, theses, books, abstracts and articles, from academic publishers, professional societies, repositories, universities and other scholarly organizations
- Off-Campus access to Brock resources is available to users who configure their Google Scholar Settings as follows:
 1. Click on **Scholar Settings**
 2. Select 'Library links' from the left menu
 3. Type Brock in the Library links box
 4. Select Brock in the resulting list
 5. Click on the 'Save' button
 6. Follow the Find it @ Brock links

- **Academic Search Complete** [↗](#)

- Scholarly resources across all disciplines
- **Permitted Uses**

[more info...](#)

- **Web of Science Complete** [↗](#)

- Interdisciplinary
- Searches all databases on the WoS platform including book, conference proceeding and journal citation indexes, chemical data, and indexes in the biological sciences.
- Includes Proquest Dissertations and Theses Citation Index.
- **Permitted Uses**

- **Scholars Portal E-Journals** [↗](#)

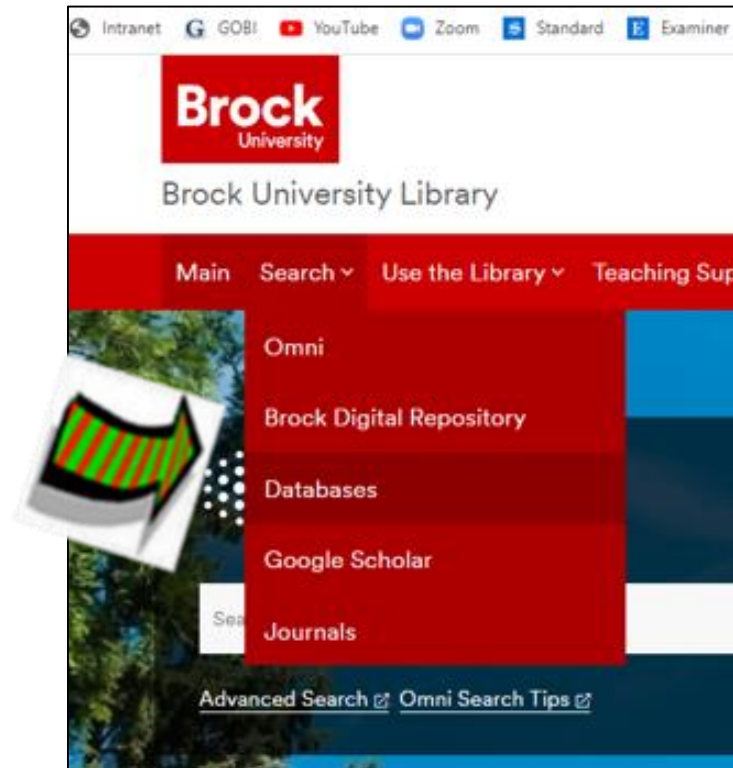
- Scholarly journal articles across all disciplines
- **Permitted Uses**

Library Seminar Agenda

- SCIE Library Research Guide
- Databases – lots of them!
- Citation management
- Where, how and when to get help

<https://brocku.ca/library/>

<https://researchguides.library.brocku.ca/az/databases>



Find a Database

Find a full list of databases the library subscribes to. Use the subject list to find databases for your program!

Database Title / Keyword	Subjects	Types
--------------------------	----------	-------

415 Databases

[All](#) [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#) <#>

A

[Academic Search Complete](#) [🔗](#)

- Scholarly resources across all disciplines.
- [Permitted Uses](#)

[Access Engineering](#) [🔗](#)

- An engineering reference and teaching platform that provides interdisciplinary engineering content integrated with analytical teaching and learning tools.
- Search the latest editions of renowned engineering handbooks, upper-level engineering textbooks, as well as hundreds of other expert references.
- Also includes DataVis, an interactive visualization tool to understand material properties.
- [Permitted Uses](#)

Academic Search Complete, AgeLine, [BASE](#), BioOne Complete, [bioRxiv](#), [CORE](#), [Dimensions](#), [Directory of Open Access Journals \(DOAJ\)](#), Education Source, [Elicit](#), Embase, [figshare](#), [Google](#), [Advanced Google](#), [Google Books](#), [Google Scholar](#), [Keenious](#), [MEDLINE](#), Omni, [Open Alex](#), [OSF Preprints](#), Oxford Reference, [Paperity](#), [PLOS](#), [ResearchGate](#), [ResearchRabbit](#), Scholars Portal E-Journals, [SciELO](#), [Scite](#), [Scilit](#), [Semantic Scholar](#), [The Lens](#), Web of Science Complete, [WorldWideScience.org](#), [WorldCat](#), [Zenodo](#)...

[Google](#), [Advanced Google](#), [Google Scholar](#), Web of Science Complete (which includes Web of Science Core Collection, MEDLINE and other databases), Academic Search Complete, Scholars Portal E-journals...



<https://brocku.ca/library/>



SEARCH CRITERIA

Search within:

☐ Brock Library + Omni Libraries

☒ Brock Library

☐ New Books

☐ Archives & Special Collections

Search fields

Any field

contains

"red dye*"

AND

Any field

contains

food* OR additive*

+ ADD A NEW ROW

↺ CLEAR

Resource Type

Articles

Language

English

Start Date:

Day

Month

2023

End Date:

Day

Month

2024

→ Any field contains "red dye*" AND Any field contains food* OR additive*

🔍 SEARCH

red dye number 40 as a food additive



Brock Library + Omni Libraries



ADVANCED SEARCH

Sign in to get complete results and to request items



Sign in



DISMISS

Modify your results



0 selected

1-10 of 10 Results



Personalize



☐ Expand search beyond Brock's collection

Sort by Relevance



Availability



Available online

Peer-reviewed Journals

Open Access

Resource Type



Articles (6)

Magazine Article (2)

Theses & Dissertations (1)

Newsletter Article (1)

[Newspapers search](#)

1



ARTICLE

Lack of genotoxicity in vivo for food color additive Allura Red AC

Bastaki, Maria ; Farrell, Thomas ; Bhusari, Sachin ; Pant, Kamala ; Kulkarni, Rohan

Food and chemical toxicology, 2017, Vol.105, p.308-314

“ ... “Food, Drug, and Cosmetic” (FD&C) Red No. 40, and in Europe as food color additive with E number 129...”



PEER-REVIEWED

[Available Online](#)



2



ARTICLE

Scientific Opinion on the re-evaluation of Allura Red AC (E 129) as a food additive

EFSA Panel on Food Additives and Nutrient Sources Added to Food

EFSA journal, 2009, Vol.7 (11), p.1327-n/a

“ ... -evaluating the safety of Allura Red AC (E 129). Allura Red AC has been previously evaluated by the Joint FAO/WHO Expert Committee on Food Additives (JECFA...”



PEER-REVIEWED



OPEN ACCESS

[Available Online](#)




☐ 0 selected

PAGE 1

1-10 of 46 Results

☐ Personalize





ARTICLE


Chitosan vs chitin: Comparative study of functional pH bioindicators synthesized from natural red dyes and biopolymers as potential packaging additives

Szadkowski, Bolesław ; Marzec, Anna

Food hydrocolloids, 2024, Vol.150, p.109670, Article 109670

 PEER-REVIEWED

 Available Online >





ARTICLE

Recent advances in electrochemical sensors based on nanomaterials for detection of red dyes in food products: A review

Mohamed, Aya M. ; Fouad, Fouad Hassan ; Raouf Fayek, George ; El Sayed, Kareem Mohsen ; Ahmed, Mohamed Nabil ; Mahmoud, Raghda Zayed ; El Nashar, Rasha M.

Food chemistry, 2024, Vol.435, p.137656-137656, Article 137656

 PEER-REVIEWED

 Available Online >

Modify your results

☐ Expand search beyond Brock's collection

Sort by Date-newest ▾

Availability ^

Available online

Peer-reviewed Journals

Open Access

Resource Type ^

Articles (46)

Newspapers search >

Publication Date ^

From	To	Refine
2021	2024	

Subject ▾

Database ▾

Language ▾

Journal Title ▾

https://elicit.com

Find papers

What are the consequences to science and society for the continued use of Red Dye as a food additive in our food supply?

Searching more than 125 million academic papers

Summarizing the first 4 abstracts

Results

Summary of top

4 papers

The continued use of Red Dye as a food additive has significant consequences for both science and society. Research has shown that many food dyes, including Red Dye, raise health concerns due to their potential carcinogenicity, genotoxicity, and hypersensitivity reactions (Kotz 2012, Potera 2010). These concerns are particularly relevant for children, as artificial food dyes have been linked to behavioral problems (Potera 2010). Furthermore, the use of Red Dye in food has been found to have adverse effects on vital organs (Sharma 2008). The health implications of synthetic food dyes, including Red Dye, have led to a growing concern, with natural food colorants being considered a safer alternative (Okafor 2016). Therefore, the continued use of Red Dye in our food supply poses significant risks to public health and underscores the need for further research and regulation in this area.

Risk assessment of azo dyes as food additives: Revision and discussion of data gaps toward their improvement.

Caroline Ramos-Souza

+3

Comprehensive Reviews in Food Science and Food Safety

2022 6 citations

DOI

Red Tomato Products as an Alternative to Reduce Synthetic Dyes in the Food Industry: A Review

Tiago Alves Castro

+8

Molecules

2021 12 citations

PDF

DOI

Effects of four food dyes on development of three model species, *Cucumis sativus*, *Artemia salina* and *Danio rerio*: Assessment of potential risk for the environment.

Chiara Maria Motta

+9

Environmental pollution

2019 21 citations

DOI

Assessment of the Health implications of Synthetic and Natural Food Colourants – A Critical Review

S. Okafor

+2

2016 39 citations

PDF

DOI

DOCUMENTS

RESEARCHERS

Search in: All Databases ▾ Collections: All ▾

DOCUMENTS

CITED REFERENCES

Topic ▾

Example: oil spill* mediterranean

food* or additive*



And ▾

Topic ▾

Example: oil spill* mediterranean

red near/2 dye* or "red azo" or "Allura red" or E129



And ▾

Title ▾

Example: water consum*

dye or dyes



+ Add row

+ Add date range

Advanced search

× Clear

Search

65 results from All Databases for:

Analyze Results

Citation Report

Create Alert

food* or additive* (Topic) and red near/2 dye* or "red azo" or "Allura red" or E129 (Topic) and dye or dyes (Title)

Search

Did you mean? food* or additive* (Topic) and red near/2 dye* or "red azo" or "Allura red" or e120 (Topic) and dye or dyes (Title) and Preprint Citation Index (Exclude – Database) and 2023 or 2024 (Publication Years) and Article (Document Types) and English (Languages) | 65 results

+ Add Keywords

Quick add keywords:

+ DYE REMOVAL

+ CONGO RED

+ AZO DYES

+ AZO DYE

+ DYES

+ WASTEWATER TREATMENT

+ ADSORPTION

Refined By:

NOT Database: Preprint Citation Index X

Publication Years: 2023 or 2024 X

Document Types: Article X

Languages: English X



6

[Red beetroot betalains as a novel source of colorant in ice-cream as compared with red dye 40 \(E129\).](#)



[Ali, RTM](#) and [Jameel, OY](#)

Apr 2023 | FUNCTIONAL FOODS IN HEALTH AND DISEASE 13 (4) , pp.225-239

Background: Although there is an increasing need for eco-friendly and non-toxic food colorants, plant-based colors have shown to be a promising alternative to synthetic food colors. The natural pigment (betalain) was extracted from red beetroot utilizing a magnetic stirrer shaking apparatus in the current study. Objective: The purpose of this study was to evaluate the effect of betalain (natura ... [Show more](#)

Find it @ Brock [Free Full Text from Publisher](#) ...

38

[References](#)

[Related records](#)

Red beetroot betalains as a novel source of colorant in ice-cream as compared with red dye 40 (E129)

By Ali, RTM (Ali, Ruaa Tariq Mohamed) ^[1] ; Jameel, QY (Jameel, Qaswaa Yousif) ^[1]

[View Web of Science ResearcherID and ORCID](#) (provided by Clarivate)

Source

FUNCTIONAL FOODS IN HEALTH AND DISEASE

Volume: 13 Issue: 4 Page: 225-239

DOI: 10.31989/ffhd.v13i4.1096

Published

APR 2023

Indexed

2023-05-14

Document Type

Article

Abstract

Background: Although there is an increasing need for eco-friendly and non-toxic food colorants, plant-based colors have shown to be a promising alternative to synthetic food colors. The natural pigment (betalain) was extracted from red beetroot utilizing a magnetic stirrer shaking apparatus in the current study. Objective: The purpose of this study was to evaluate the effect of betalain (natural pigment) and red dye 40 (synthetic pigment), on the chemical, microbiological, and sensory properties of ice cream. Materials and Methods: Betalain and red dye 40 were added into ice cream at variable concentrations of 50, 100, and 200 mg/mL. Specimens were stored for 70 days and evaluated every ten days. Results: The values of titratable acidity, PH, fat, protein, total count of microorganisms, and sensory characteristics scored higher for betalain ice cream in comparison to red dye 40 ice cream. Nevertheless, betalain doses of 50, 100, and 200 mg/mL have been reported to have a significant 70-day storage activity in ice cream, when compared to mixtures containing 50, 100, and 200 mg/mL of red dye 40 after 70 days. Conclusion: According to the findings, betalain may be utilized as a natural pigment and food preservative to boost stability during storage.

Keywords

Author Keywords: Antioxidants; Betalain; Functional foods; Red beetroot; Red Dye 40 (E129); synthetic colors; Storage period

Author Information

Corresponding Address: Jameel, Qaswaa Yousif (corresponding author)

▼ Univ Mosul, Coll Agr & Forestry, Dept Food Sci, Mosul, Iraq

Addresses :

▼ ¹ Univ Mosul, Coll Agr & Forestry, Dept Food Sci, Mosul, Iraq

Marked List

My marked lists Unfiled Records (18)


18 Unfiled Records


These items have not been added to a list yet. Start organizing your unfiled records by clicking each item.



Type	Count
Documents	18
Chem Structures: Reactions	0
Chem Structures: Compounds	0







<https://brocku.ca/library/>

SEARCH CRITERIA 

→ Any field contains 10.31989/ffhd.v13i4.1096 AND Any field contains _____  **SEARCH**

Sign in to get complete results and to request items  **Sign in** |  **DISMISS**

☐ 0 selected 1-1 of 1 Results  ☐ Personalize  


1 



ARTICLE





Red beetroot betalains as a novel source of colorent in ice-cream as compared with Red Dye 40 (E129)

Ali, Ruaa Tariq Mohamed ; Jameel, Qaswaa Yousif

Functional foods in health and disease, 2023, Vol.13 (4), p.225

 OPEN ACCESS

 Available Online 



zoterobib

10.31989/ffhd.v13i4.1096

Cite

Manual Entry

Ali, R. T. M., & Jameel, Q. Y. (2023). Red beetroot betalains as a novel source of colorent in ice-cream as compared with Red Dye 40 (E129). *Functional Foods in Health and Disease*, 13(4), 225. <https://doi.org/10.31989/ffhd.v13i4.1096>

Close

Delete

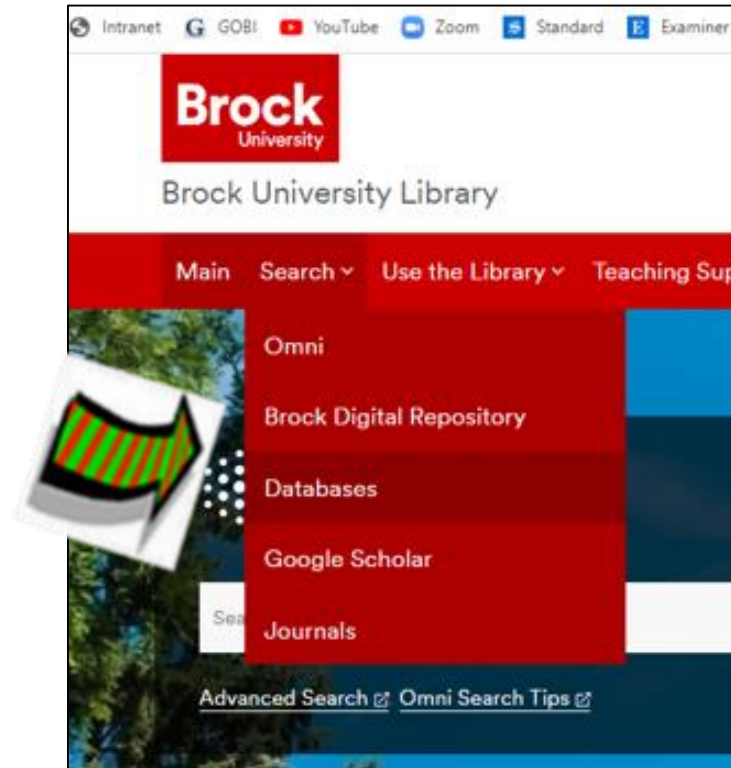
Edit

Bibliography



<https://brocku.ca/library/>

Google Scholar





Articles

Any time

Since 2024

Since 2023

Since 2020

Custom range...

Sort by relevance

Sort by date

Any type

Review articles

☐ include patents

☒ include citations

Red beetroot betalains as a novel source of colorent in ice-cream as compared with Red Dye 40 (E129)

RTM Ali, QY Jameel

Functional Foods in Health and Disease, 2023 - ffhdj.com

[PDF] ffhdj.com

Find it @ Brock



Abstract

Background: Although there is an increasing need for eco-friendly and non-toxic food colorants, plant-based colors have shown to be a promising alternative to synthetic food colors. The natural pigment (betalain) was extracted from red beetroot utilizing a magnetic stirrer shaking apparatus in the current study.

Objective: The purpose of this study was to evaluate the effect of betalain (natural pigment) and red dye 40 (synthetic pigment) on the chemical, microbiological, and

SHOW MORE

☆ Save Cite Related articles All 4 versions

Showing the best result for this search. See all results



Red beetroot betalains as a novel source of colorant in ice-cream as compared with red dye 40 (E129)

Ruaa Tariq Mohamed Ali, Qaswaa Yousif Jameel *

Department of Food Science, Colleges of Agricultural and Forestry, University of Mosul, Mosul, Iraq

*Corresponding author: Qaswaa Yousif Jameel, PhD, Department of Food Science, Colleges of Agricultural and Forestry, University of Mosul, Mosul, Iraq.

Submission Date: March 29th, 2023; Acceptance Date: April 18th, 2023; Publication Date: April 26th, 2023

Please cite this article as: Ali R. T. M., Jameel Q. Y. Red beetroot betalains as a novel source of colorant in ice-cream as compared with Red Dye 40 (E129). *Functional Foods in Health and Disease* 2023; 13(4): 225-239. DOI: <https://www.doi.org/10.31989/ffhd.v13i4.1096>

ABSTRACT

Background: Although there is an increasing need for eco-friendly and non-toxic food colorants, plant-based colors have shown to be a promising alternative to synthetic food colors. The natural pigment (betalain) was extracted from red beetroot utilizing a magnetic stirrer shaking apparatus in the current study.

Objective: The purpose of this study was to evaluate the effect of betalain (natural pigment) and red dye 40 (synthetic pigment), on the chemical, microbiological, and sensory properties of ice cream.

Materials and Methods: Betalain and red dye 40 were added into ice cream at variable concentrations of 50, 100, and 200 mg/mL. Specimens were stored for 70 days and evaluated every ten days.

Results: The values of titratable acidity, PH, fat, protein, total count of microorganisms, and sensory characteristics scored higher for betalain ice cream in comparison to red dye 40 ice cream. Nevertheless, betalain doses of 50, 100, and 200 mg/mL have been reported to have a significant 70-day storage activity in ice cream, when compared to mixtures containing 50, 100, and 200 mg/mL of red dye 40 after 70 days.

Conclusion: According to the findings, betalain may be utilized as a natural pigment and food preservative to boost stability during storage.

Keywords: Antioxidants, Betalain, Functional foods, Red beetroot, Red Dye 40 (E129), synthetic colors, Storage period

METHODS

Chemicals and Reagents: In a local market in Mosul, Iraq, we bought raw cow's milk and red beetroot. All materials and chemicals were purchased from Scharlab S.L (Spain), and they were of the highest analytical grades currently offered commercially.

Preparation of red beetroot extract

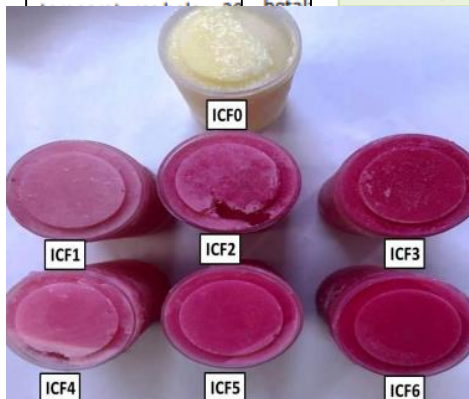
Red beetroot was cut into small pieces and provided by [22]. Briefly, 100 g of beetroot powder was macerated in 500 mL of ethanol for 24 h before being shaken. After that, the solution was filtered through a paper 0.15 cm. The residue was extracted by evaporation.

RESULTS AND DISCUSSION

Quantification of betalains in red beetroot extract: HPLC analysis was performed to evaluate the betalain in the beetroot extract. The data revealed that red beetroot

Table 4: Effect of betalains and red dye 40 (E129), on sensory characteristics (Flavor and Taste, Body and Texture, Color and Appearance, and Melting Resistance) during the storage period.

Ice-cream formulation (ICF)	Flavor and Taste	Body and Texture	Color and Appearance	Melting Resistance
Storage period (Day 1)				
ICF0	7.5100±0.0100 ^a	8.1400±0.0100 ^d	8.0100±0.0100 ^d	8.0167±0.01528 ^a
ICF1	7.9100±0.0100 ^a	8.1600±0.0200 ^a	7.6400±0.0100 ^d	7.7600±0.0100 ^a
	8.8700±0.0100 ^c	8.1700±0.0200 ^c	7.4300±0.0100 ^d	7.3800±0.0100 ^a
	8.9800±0.0100 ^a	8.1800±0.0200 ^c	7.3200±0.0100 ^d	7.3367±0.04041 ^a
	7.9200±0.0100 ^d	8.2100±0.0100 ^b	7.2900±0.0100 ^d	7.1900±0.16462 ^d
	8.9600±0.0100 ^b	8.2267±0.00577 ^a	7.2800±0.0100 ^d	6.9400±0.0100 ^d
	8.9800±0.0100 ^a	8.2400±0.0100 ^b	6.9400±0.0100 ^d	6.5100±0.0100 ^d



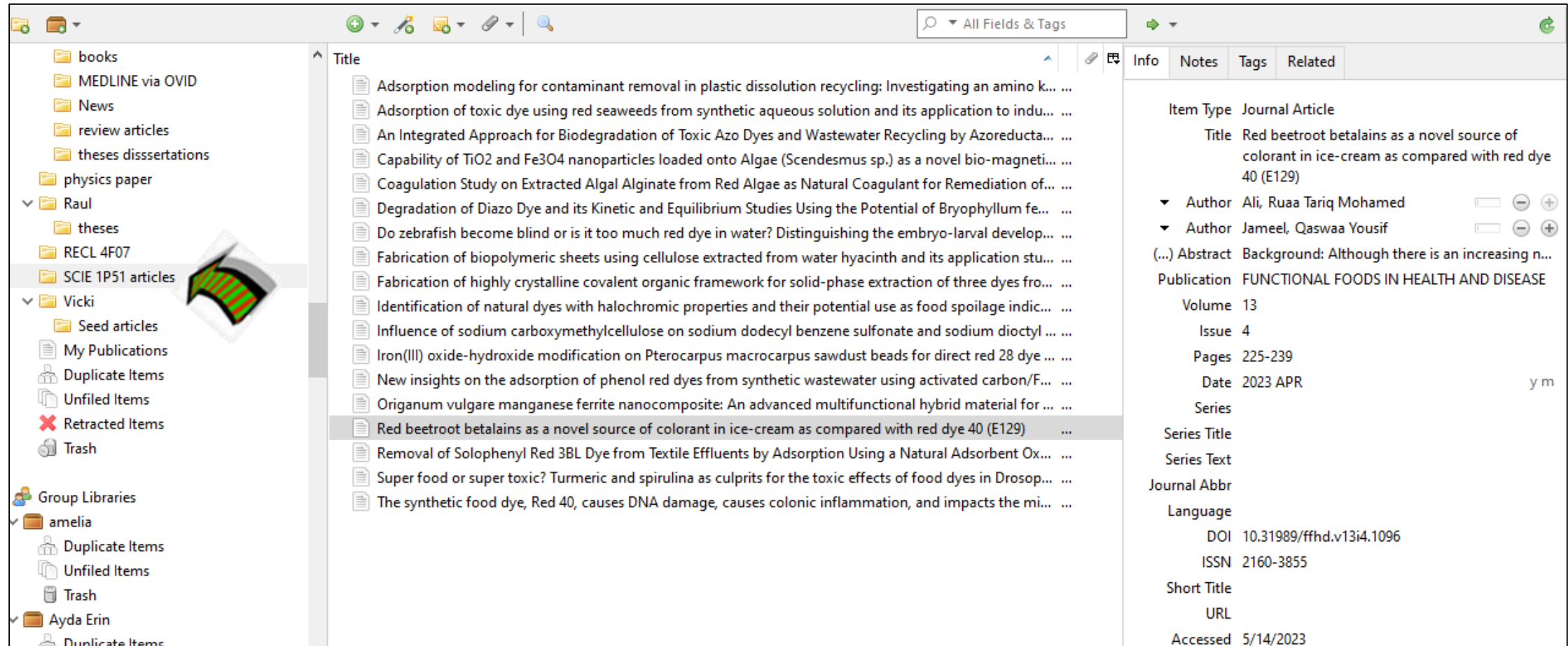
CONCLUSION

According to this study, adding betalain to ice cream had a big an impact on the ice cream's chemical and microbiological features. The results showed that betalain, protein, pH, fat, overall acceptability, sensory characteristics, and betalain concentration

REFERENCES

1. Erkaya T, Dağdemir E, Sengül M: Influence of Cape gooseberry (*Physalis peruviana* L.) addition on the chemical and sensory characteristics and mineral concentrations of ice cream. *Food Research International* 2012, 45: 331-5. DOI: <https://doi.org/10.1016/j.foodres.2011.09.013>
2. ARSLANER A and SALIK MA: Fonksiyonel Dondurma Teknolojisi. *Akademik Gıda* 2020, 18: 180-9. DOI: <https://doi.org/10.24323/akademik-gida.758835>
3. Shadordizadeh T, Mahdian E, Hesarinejad MA: Application of

Ali, R. T. M., & Jameel, Q. Y. (2023). Red beetroot betalains as a novel source of colorant in ice-cream as compared with Red Dye 40 (E129). *Functional Foods in Health and Disease*, 13(4), 225. <https://doi.org/10.31989/ffhd.v13i4.1096>



books

MEDLINE via OVID

News

review articles

theses disssertations

physics paper

▼ Raul

theses

RECL 4F07

SCIE 1P51 articles

▼ Vicki

Seed articles

My Publications

Duplicate Items

Unfiled Items

Retracted Items

Trash

Group Libraries

▼ amelia

Duplicate Items

Unfiled Items

Trash

▼ Ayda Erin

Duplicate Items

Title

Adsorption modeling for contaminant removal in plastic dissolution recycling: Investigating an amino k... ..

Adsorption of toxic dye using red seaweeds from synthetic aqueous solution and its application to indu... ..

An Integrated Approach for Biodegradation of Toxic Azo Dyes and Wastewater Recycling by Azoreducta... ..

Capability of TiO₂ and Fe₃O₄ nanoparticles loaded onto Algae (Scendesmus sp.) as a novel bio-magneti... ..

Coagulation Study on Extracted Algal Alginate from Red Algae as Natural Coagulant for Remediation of... ..

Degradation of Diazo Dye and its Kinetic and Equilibrium Studies Using the Potential of Bryophyllum fe... ..

Do zebrafish become blind or is it too much red dye in water? Distinguishing the embryo-larval develop... ..

Fabrication of biopolymeric sheets using cellulose extracted from water hyacinth and its application stu... ..

Fabrication of highly crystalline covalent organic framework for solid-phase extraction of three dyes fro... ..

Identification of natural dyes with halochromic properties and their potential use as food spoilage indic... ..

Influence of sodium carboxymethylcellulose on sodium dodecyl benzene sulfonate and sodium dioctyl

Iron(III) oxide-hydroxide modification on Pterocarpus macrocarpus sawdust beads for direct red 28 dye

New insights on the adsorption of phenol red dyes from synthetic wastewater using activated carbon/F... ..

Origanum vulgare manganese ferrite nanocomposite: An advanced multifunctional hybrid material for

Red beetroot betalains as a novel source of colorant in ice-cream as compared with red dye 40 (E129)

Removal of Solophenyl Red 3BL Dye from Textile Effluents by Adsorption Using a Natural Adsorbent Ox... ..

Super food or super toxic? Turmeric and spirulina as culprits for the toxic effects of food dyes in Drosop... ..

The synthetic food dye, Red 40, causes DNA damage, causes colonic inflammation, and impacts the mi... ..

Info Notes Tags Related

Item Type Journal Article

Title Red beetroot betalains as a novel source of colorant in ice-cream as compared with red dye 40 (E129)

▼ Author Ali, Ruaa Tariq Mohamed

▼ Author Jameel, Qaswaa Yousif

(...) Abstract Background: Although there is an increasing n...

Publication FUNCTIONAL FOODS IN HEALTH AND DISEASE

Volume 13

Issue 4

Pages 225-239

Date 2023 APR y m

Series

Series Title

Series Text

Journal Abbr

Language

DOI 10.31989/ffhd.v13i4.1096

ISSN 2160-3855

Short Title

URL

Accessed 5/14/2023

How are Red Dye constituents as food additives identified and removed from our food supply, waste, and wider environment?

Select a Field (optional) ▾

Search

AND ▾

Select a Field (optional) ▾

[Create Alert](#)

AND ▾

TX All Text ▾

[Clear](#) ?

Search Results: 1 - 50 of 88



Detection of **Allura Red** in Food Samples Using Carbon Paste Modified with Lanthanum and Titanium Oxides.




By: Vargas-Varela, Anthony; Cardenas-Riojas, Andy A.; Nagles, Edgar; Hurtado, John. ChemistrySelect. 2/3/2023, Vol. 8 Issue 5, p1-8. 8p. DOI: 10.1002/slct.202204737.

[Find Full Text](#)


Find all my search terms:

("red dye" or E129 or "Allura red") AND (w...

Expanders

Apply equivalent subjects 


Limiters

Peer Reviewed Publication Date:
20230101-20241231 

Source Types

Academic Journals 

Language

english 

Detection of Allura Red in Food Samples Using Carbon Paste Modified with Lanthanum and Titanium Oxides.

Authors: [Vargas-Varela, Anthony](#)¹ (AUTHOR)
[Cardenas-Riojas, Andy A.](#)² (AUTHOR) andy.cardenas.r@uni.pe
[Nagles, Edgar](#)¹ (AUTHOR) enaglesv@unmsm.edu.pe
[Hurtado, John](#)³ (AUTHOR)

Source: [ChemistrySelect](#). 2/3/2023, Vol. 8 Issue 5, p1-8. 8p.

Document Type: Article

Subject Terms: [*TITANIUM oxides](#)
[*LANTHANUM oxide](#)
[*RARE earths](#)
[*CARBON electrodes](#)
[*DETECTION limit](#)

Author-Supplied Keywords: [Allura red](#)
[Carbon paste](#)
[Lanthanum and titanium oxides](#)
[Modified electrode](#)

NAICS/Industry Codes: [335991](#) Carbon and Graphite Product Manufacturing

Abstract: This report describes a new electroanalytical application for the detection of Allura Red (AR) using a carbon paste electrode (CPE) modified with lanthanide oxide and titanium oxide (LaOX-TiOX/CPE). The standard potential (E_0) for oxidation of AR was obtained from the E (V) vs. pH relation with the regression equation $E_p(V) = -0.038pH + 0.922$, where the intercept on the axis $E_p(V)$ is equal to the standard potential. Moreover, the anodic peak current for AR was increased almost 160 % compared to the unmodified electrodes, and this current increase allowed us to obtain a detection limit of 0.09 $\mu\text{mol/L}$. The active surface area of the modified electrode La-TiOX/CPE is reported for the first time in this report and was increased by almost 200 % compared to the unmodified electrodes. The usefulness of the new method was tested by analyzing real food samples with acceptable results. The real samples do not need pretreatment before analysis [ABSTRACT FROM AUTHOR]

Copyright of ChemistrySelect is the property of Wiley-Blackwell and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use. This abstract may be abridged. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material for the full abstract. (Copyright applies to all Abstracts.)

Author Affiliations: ¹Facultad de Química e Ing. Química, Universidad Nacional Mayor de San Marcos., Lima, Perú 07016
²Facultad de Ciencias, Universidad Nacional de Ingeniería, Lima, Perú
³Departamento de Química, Universidad de los Andes, Bogotá, Colombia

Full Text Word Count: 4978

ISSN: 2365-6549

DOI: 10.1002/slct.202204737

Accession Number: 161691046



zotero**ib**

10.1002/slct.202204737

Cite

Manual Entry

Vargas-Varela, A., Cardenas-Riojas, A. A., Nagles, E., & Hurtado, J. (2023). Detection of allura red in food samples using carbon paste modified with lanthanum and titanium oxides. *ChemistrySelect*, 8(5), e202204737.
<https://doi.org/10.1002/slct.202204737>

Close

Delete

Edit

Bibliography

American Psychological Association 7th edition



Google Scholar 10.1002/slct.202204737

Articles

Any time
Since 2024
Since 2023
Since 2020
Custom range...

Sort by relevance
Sort by date

Any type
Review articles

☐ include patents
☒ include citations

Detection of Allura Red in Food Samples Using Carbon Paste Modified with Lanthanum and Titanium Oxides
A Vargas-Varela, AA Cardenas-Riojas, E Nagles, J Hurtado
ChemistrySelect, 2023 - Wiley Online Library

[PDF] wiley.com
Full View

Abstract
This report describes a new electroanalytical application for the detection of Allura Red (AR) using a carbon paste electrode (CPE) modified with lanthanide oxide and titanium oxide (La₂O₃-TiO₂/CPE). The standard potential (E°) for oxidation of AR was obtained from the E (V) vs. pH relation with the regression equation E_p(V) = -0.038pH + 0.922, where the intercept on the axis E_p(V) is equal to the standard potential. Moreover, the anodic peak

SHOW MORE ▾

☆ Save Cite Cited by 3 Related articles Web of Science: 1

Showing the best result for this search. See all results

Vargas-Varela, A., Cardenas-Riojas, A. A., Nagles, E., & Hurtado, J. (2023). Detection of allura red in food samples using carbon paste modified with lanthanum and titanium oxides. *ChemistrySelect*, 8(5), e202204737. <https://doi.org/10.1002/slct.202204737>

Check for updates ChemistrySelect Research Article doi.org/10.1002/slct.202204737

Chemistry Europe European Chemical Societies Publishing

www.chemistryselect.org

Detection of Allura Red in Food Samples Using Carbon Paste Modified with Lanthanum and Titanium Oxides

Anthony Vargas-Varela,^[a] Andy A. Cardenas-Riojas,^{*,[b]} Edgar Nagles,^{*,[a]} and John Hurtado^[c]

This report describes a new electroanalytical application for the detection of Allura Red (AR) using a carbon paste electrode (CPE) modified with lanthanide oxide and titanium oxide (La₂O₃-TiO₂/CPE). The standard potential (E°) for oxidation of AR was obtained from the E (V) vs. pH relation with the regression equation E_p(V) = -0.038pH + 0.922, where the intercept on the axis E_p(V) is equal to the standard potential. Moreover, the anodic peak current for AR was increased almost 160% compared to the unmodified electrodes, and this current increase allowed us to obtain a detection limit of 0.09 μmol/L. The active surface area of the modified electrode La-Ti/CPE is reported for the first time in this report and was increased by almost 200% compared to the unmodified electrodes. The usefulness of the new method was tested by analyzing real food samples with acceptable results. The real samples do not need pretreatment before analysis

Introduction

The number of reports aimed at detecting AR has increased in recent years, and the evidence is supported by various reviews published in recent years. Most reports have focused on advances in extraction and analytical techniques to detect AR over the last two decades.^[1] The first techniques used to detect AR involved thin-layer chromatography at the beginning of the 1990 s^[2] and currently, High performance liquid chromatography (HPLC) technique is more often used and is more sensitive for detecting AR, with detection limits between 10.0 and 50.0 μmol/L,^[3] but with high instrumental costs. Other spectrometry techniques are also commonly used to detect the high values of molar absorption presented by AR.^[3] These techniques are more economical than HPLC techniques but of these studies are motivated cause to people who consume the toxicity of AR were reported recent studies continue to not been possible to establish the development of cancerous

increased, and the innovation is the development of modified electrodes.^[8–10] Some materials used for the development of modified electrodes include polymers, carbon nanotubes, ionic liquids, graphene and surfactants, where detection limits between 0.008 and 0.05 μmol/L have been reported.^[11–13] On the other hand, the most commonly used substances in the modification of electrodes for AR detection are metal cations such as oxides, including cobalt oxide Co₃O₄, NiO, MoO₃ and Mn₂O₃,^[14–16] as nanoparticles^[11,20] and as complexes.^[21,22] On the other hand, cobalt and titanium oxides combined with graphene have been used to detect AR, where a detection limit of 0.05 μmol/L was reported.^[23] However, its ability to detect AR combined with La₂O₃ has not been reported.

The use of lactanide oxide in the modification of electrodes has increased in recent years due to the electrochemical properties of the empty outer shell orbitals, which allow the free and stable movement of electrons in the crystal shell.^[24] Moreover, lanthanum-modified electrodes have been used, such as LaFeO₃ for piroxicam detection,^[25] La₂O₃ for guanine and uric acid and thimerosal detection,^[26,27] and COOLa combined with graphene for dopamine detection.^[28,29] These reports affirm the catalytic properties of lanthanum in electrode modification.

The combined use of titanium oxide and lanthanum oxides has been reported in the development of lithium-ion battery anodes,^[30] where modification with La and Ti oxide improves the reversibility and conductivity of the battery. In sensor development, it has been reported that La₂Ti₂O₇-La₂O₃ has been used to detect nitrite in glassy carbon electrode (GCE)^[31] and that La₂O₃-TiO₂ has been used to detect tartrazine and sunset yellow in carbon paste.^[32] In addition, the interaction between the two oxides increases the surface area almost 50 times,^[33] and the catalytic effect of TiO₂ is increased.^[25] On the other hand, the properties of lanthanum oxide have allowed it to be used in recent years in combination with other oxides, such as tin to detect the insecticide carbaryl,^[34] cobalt to detect bisphenol,^[35] amlodipine and acetaminophen,^[36] tantalum for

Electroanalytical techniques are an alternative means for developing new methodologies for AR detection that can obtain sensitive, selective and economical results. In recent years, the development of these techniques to detect AR has

[a] A. Vargas-Varela, Prof. E. Nagles
Facultad de Química e Ing. Química
Universidad Nacional Mayor de San Marcos.
Lima, Perú (07016)
E-mail: enaglesv@unmsm.edu.pe

[b] Dr. A. A. Cardenas-Riojas
Facultad de Ciencias
Universidad Nacional de Ingeniería
Lima, Perú
E-mail: andy.cardenas.r@uni.pe

[c] Prof. J. Hurtado
Departamento de Química
Universidad de los Andes
Bogotá, Colombia

ChemistrySelect 2023, 8, e202204737 (1 of 8)

© 2023 Wiley-VCH GmbH

The screenshot displays the Zotero desktop application interface. On the left, a sidebar shows a hierarchical library structure with folders such as 'books', 'MEDLINE via OVID', 'News', 'review articles', 'theses disssertations', 'physics paper', 'Raul', 'theses', 'RECL 4F07', 'SCIE 1P51 articles', 'Vicki', 'Seed articles', 'My Publications', 'Duplicate Items', 'Unfiled Items', 'Retracted Items', 'Trash', 'Group Libraries', 'amelia', 'Ayda Erin', 'Duplicate Items', 'Unfiled Items', 'Retracted Items', and 'Trash'. The main pane shows a list of articles, with the selected article being 'Detection of Allura Red in Food Samples Using Carbon Paste Modified with Lanthanum and Titanium Oxides'. The right pane displays the details of this article, including the item type 'Journal Article', title, authors (Vargas-Varela, Anthony; Cardenas-Riojas, Andy A.; Nagles, Edgar; Hurtado, John), abstract, publication 'ChemistrySelect', volume 8, issue 5, pages 1-8, date 2023-02-03, series, series title, series text, journal abbreviation, language, DOI, ISSN 23656549, short title, URL, accessed date, and archive 'Academic Search Complete'.

What are the consequences to science and society
for the continued use of Red Dye as an
additive in our food supply?

What are the consequences to **science and society** for the continued use of **Red Dye** as an **additive in our food supply**?

1. Red Dye
2. Food additives
3. Food supply safety

1. “Red Dye” or “Red azo” or “Allura red number 40” or E129
2. “food additive*” or preserv* or stabalis* or emulsif*
3. safet* or carcin* or cancer* or “food supply” or toxic*

waste, humans, environment*, consequences, detection, remov*...



Synonyms Antonyms Definitions Rhymes Sentences Translations Find Words Word For

What is another word for food additives?

Need *synonyms for food additives*? Here's a list of *similar words* from our *thesaurus* that you can use instead.

Contexts

- Plural for something added to processed food
- Plural for a red coloring dye derived from insects, often used as an additive

Noun

Plural for something added to processed food

preservatives colourants^{UK} colorants^{US} emulsifiers stabilisers^{UK}

stabilizers^{US} thickeners flavor enhancers

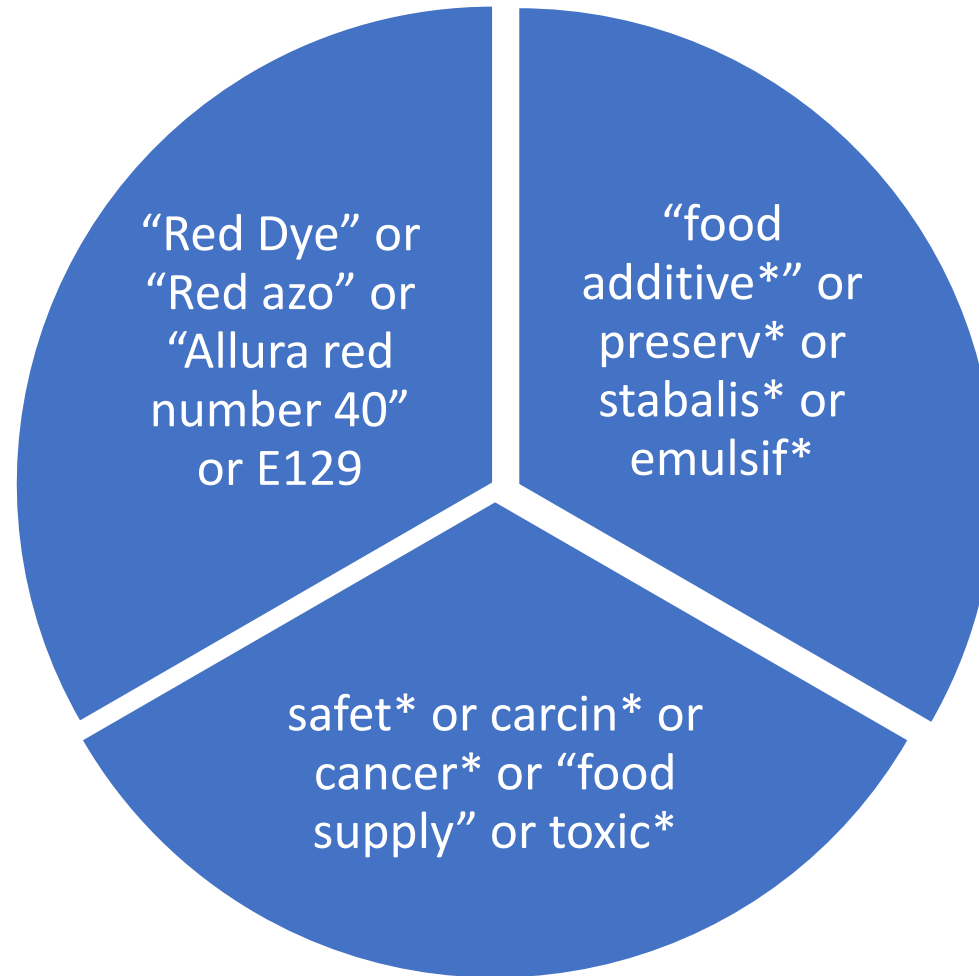
*"Potassium bromate has been used as a **food additive** in the treatment of flour and as a constituent of the neutralizer in cold-wave hair solutions."*

Noun

Plural for a red coloring dye derived from insects, often used as an additive

cochineals colouring^{UK} coloring^{US} dyes additives

What are the consequences to **science and society** for the continued use of **Red Dye** as an **additive in our food supply**?



Scholarly articles
2023+
English

Google / Advanced / Scholar
Academic Search Complete
Web of Science Complete
Scholars Portal E-Journals

1 article

waste, humans, environment*,
consequences, detection,
remov*...

zotero
zotero

DOCUMENTS
CITED REFERENCES

Topic
▼

Example: oil spill* mediterranean
"Red Dye" or "Red azo" or "Allura red number 40" or E129

And ▼

Topic
▼

Example: oil spill* mediterranean
"food additive*" or preserv* or stabalis* or emulsif*

And ▼

Topic
▼

Example: oil spill* mediterranean
safet* or carcin* or cancer* or "food supply" or toxic*

+ Add row

+ Add date range

Advanced search

× Clear

Search

Additional keywords/phrases: waste, humans, environment*, consequences, detection, remov*...

Document Types=Articles; Publication Years=2023 + 2024; Languages=English

Library Seminar Agenda

- SCIE Library Research Guide
- Databases – lots of them!
- Citation management
- Where, how and when to get help

zotero

<https://www.zotero.org/>

zotero**bib**

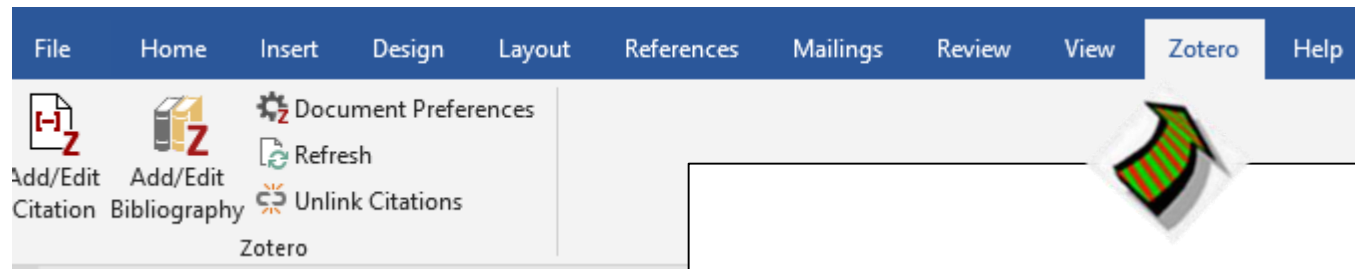
<https://zbib.org/>

Citation Management

<https://researchguides.library.brocku.ca/citationmanagement>

Style Guides

<https://researchguides.library.brocku.ca/styleguides>



SCIE Assignment

Ian Gordon

Red Dye Paper

This assignment comments on the research question “What are the consequences to science and society for the continued use of Red Dye as a food additive in our food supply?” A scholarly peer-reviewed paper (Ali & Jameel, 2023) commented that...

References

Ali, R. T. M., & Jameel, Q. Y. (2023). Red beetroot betalains as a novel source of colorent in ice-cream as compared with Red Dye 40 (E129). *Functional Foods in Health and Disease*, 13(4), 225. <https://doi.org/10.31989/ffhd.v13i4.1096>

Library Seminar Agenda

- SCIE Library Research Guide
- Databases – lots of them!
- Citation management
- Where, how and when to get help

Notes to consider:

Article - Related to Course objectives and lectures SCIE 1P50

Not an article in the course readings

Scholarly peer-reviewed journal article

Shouldn't be a sociology, public health or psychology paper

Not too long... not too short

Published in 2023 or 2024

Understandable!

Suitable for writing a summary in your own words



Of personal interest

Available for downloading in PDF format

Handed in by the due date

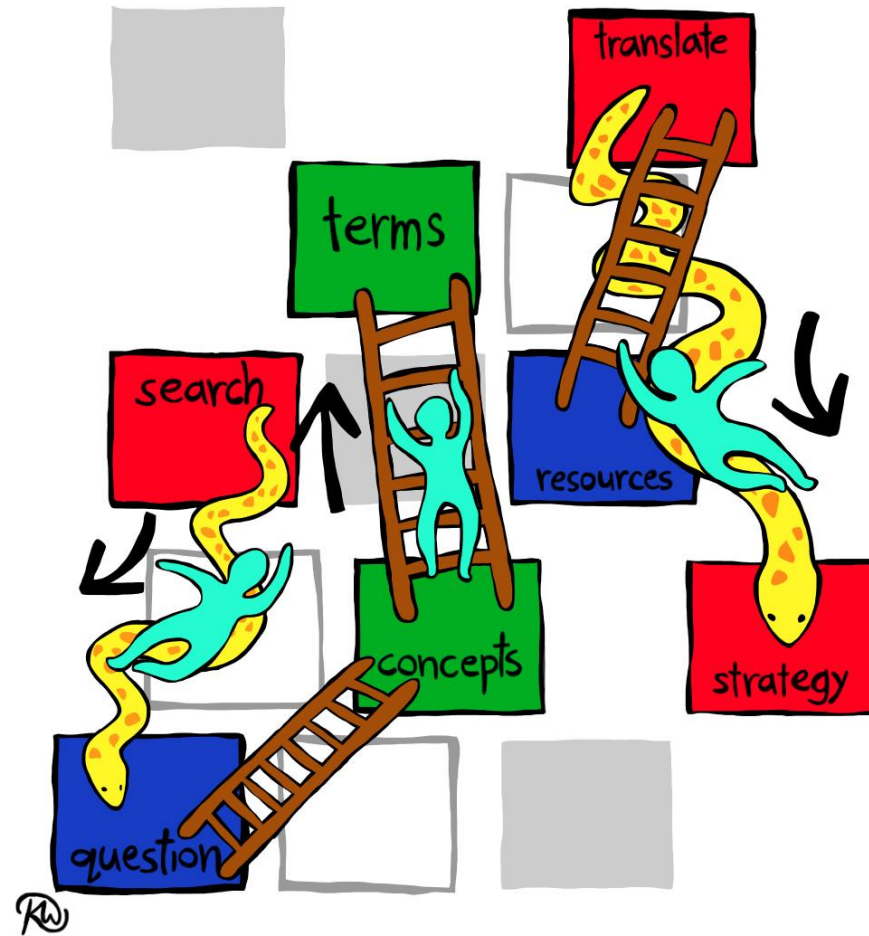
Ask your professor and/or TA for help – they want you to be successful!

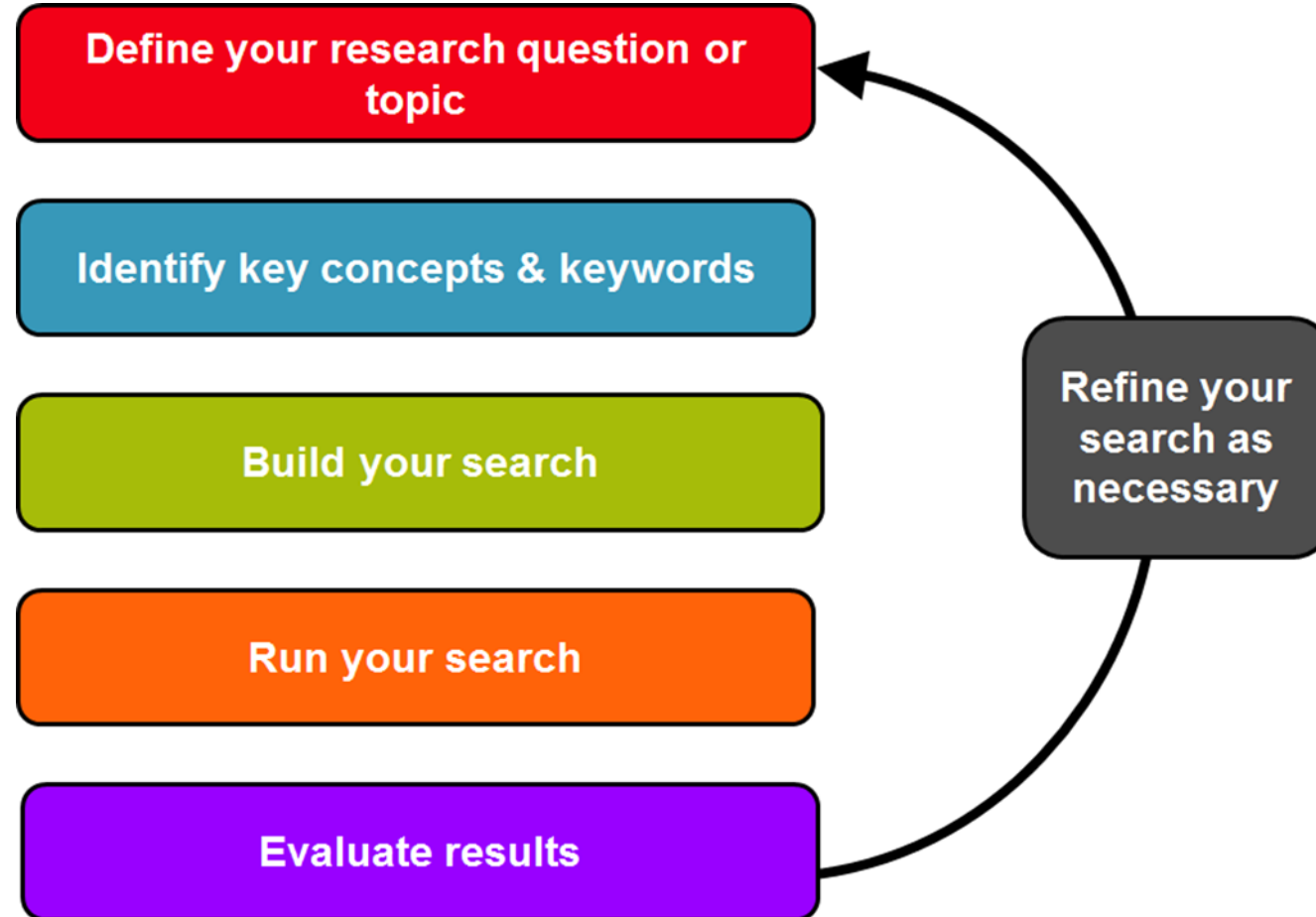
Learning Outcomes:

- Recognize the value of scholarly research
- Understand the scholarly process of peer review
- Note that there are way too many different databases
- Search each database separately
- Develop different search strategies – be flexible
- Reading article citations effectively
- Read, download, and cite this research
- Use zoterobib and Zotero
- There is no one way to search the literature
- Be open to conducting searches differently
- Research can be messy
- Ask for help if needed
- Become information literate



Searching is a non-linear and potentially iterative process.





The information literate person can:



Information

<https://aau.ac.ae/en/blog/ten-signs-to-know-if-you-are-information-literate>

<https://brocku.ca/library/video-tutorials/>

IN THIS SECTION

CHAT ONLINE

VISIT THE ASK US DESK

BOOK A CONSULTATION

ATTEND A WORKSHOP

> WATCH A VIDEO TUTORIAL

USE A RESEARCH GUIDE

FIND CITATION HELP

SYSTEMATIC REVIEWS & EVIDENCE SYNTHESSES

MAKERSPACE SUPPORT

DSL TOOLS & TUTORIALS

DATA, GIS & MAP SUPPORT

Connect with us



Video Tutorials

If you need a quick point in the right direction, then you're in the right place. Learn at your own pace with our selection of mini video tutorials (2-3mins) covering library resources and search strategies.

What's an Annotated Bibliography?



What are Primary & Secondary Sources



What's a Search Strategy?



What are "Scholarly" Sources?



What does "Peer Review" Mean?



Evaluating Sources with RADAR



[Browse all videos](#)

Where can I get help?

Brock Library SCIE Research Guide


<https://researchguides.library.brocku.ca/SCIE>

Email the Library

libhelp@brocku.ca

Ask Us Chat service

<https://brocku.ca/library/chat/>

Ask Us Chat 



Book a Consultation

<https://calendar.library.brocku.ca/appointments/researchconsultation>

Make an Appointment Research Consultation

Your Librarian can help you:

- use the best search tools for your assignments
- find information sources on your specific topic
- develop effective research strategies
- become a confident and independent researcher

1. Select One

▼ Librarian

Research Consultation (30 minutes) ▼

☐ Justine Cotton

☒ Ian Gordon (he/him)

☐ Jennifer Thiessen

☐ Elizabeth Yates

☐ Kymberly Ash

☐ Vanja Stojanovic

2. Select Date:

Feb

2024

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

3. Select Time:

Tuesday, February 6, 2024

Time Zone: Eastern Time - US & Canada ([change](#))

9:00am

9:30am

10:00am

10:30am

12:00pm

12:30pm

1:00pm

3:00pm

3:30pm

Continue

Make an Appointment Research Consultation

Appointment Details

Appointment with: Ian Gordon (he/him)

Date: Tuesday, January 30, 2024

Start Time: 2:00pm

Time Zone: Eastern Time - US & Canada

Type: Research Consultation

Location: Research Consultation

Directions: Ian is willing to help out in person in ST 1137, find my office using <https://www.youtube.com/watch?v=u3GQa5l-ls8> or meeting virtually by Teams. Please indicate your preference with thanks!

Change Appointment Details

Full Name *

James

Gibson

Email *

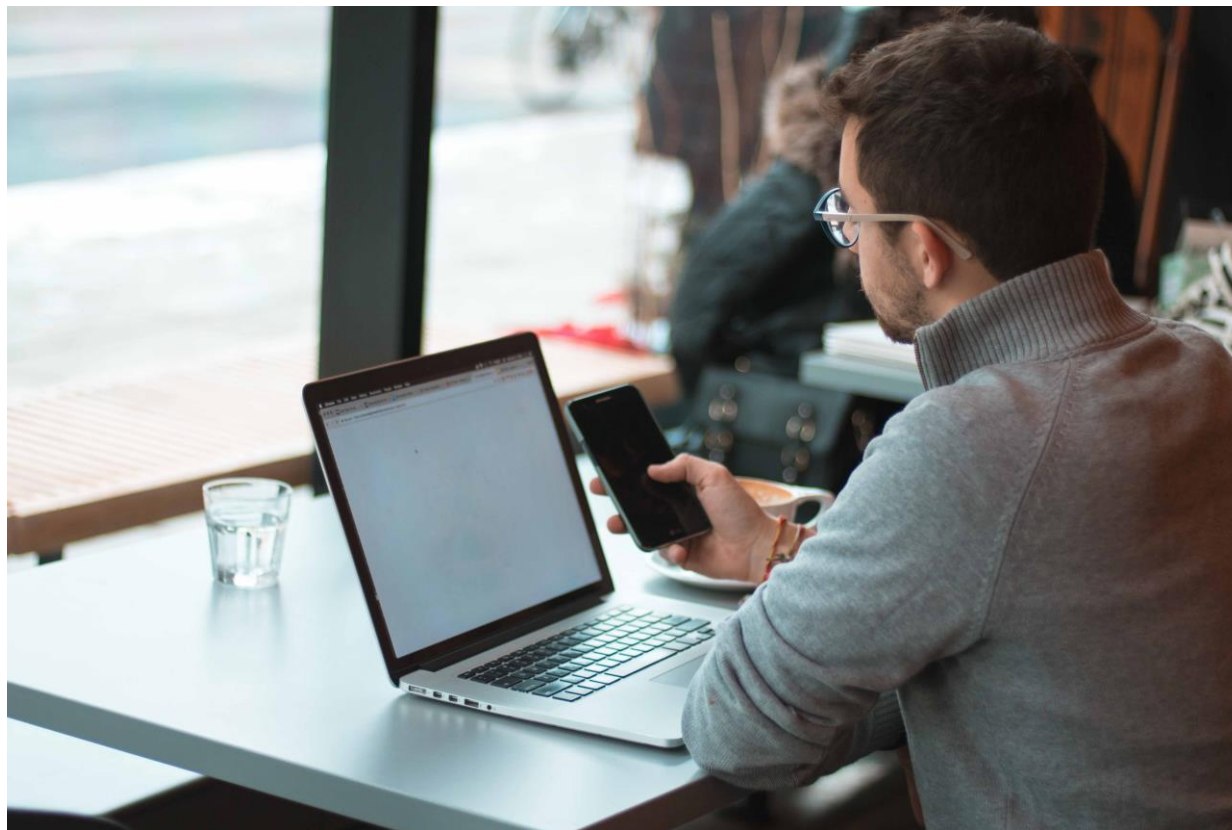
gr19wq@brocku.ca

Let me know the nature of the appointment, your program and if this is related to a course assignment with thanks. This will help. Ian *

Meeting in person to review the SCIE 1P21 assignment for vaccines using Web of Sc

Confirm Appointment

* is required



Man sitting near table with laptop photo
by [Joseph Frank](#) on [Unsplash](#)



Ian Gordon

Teaching & Learning Librarian
igordon@brocku.ca

Best of luck with this assignment.

Here to help!